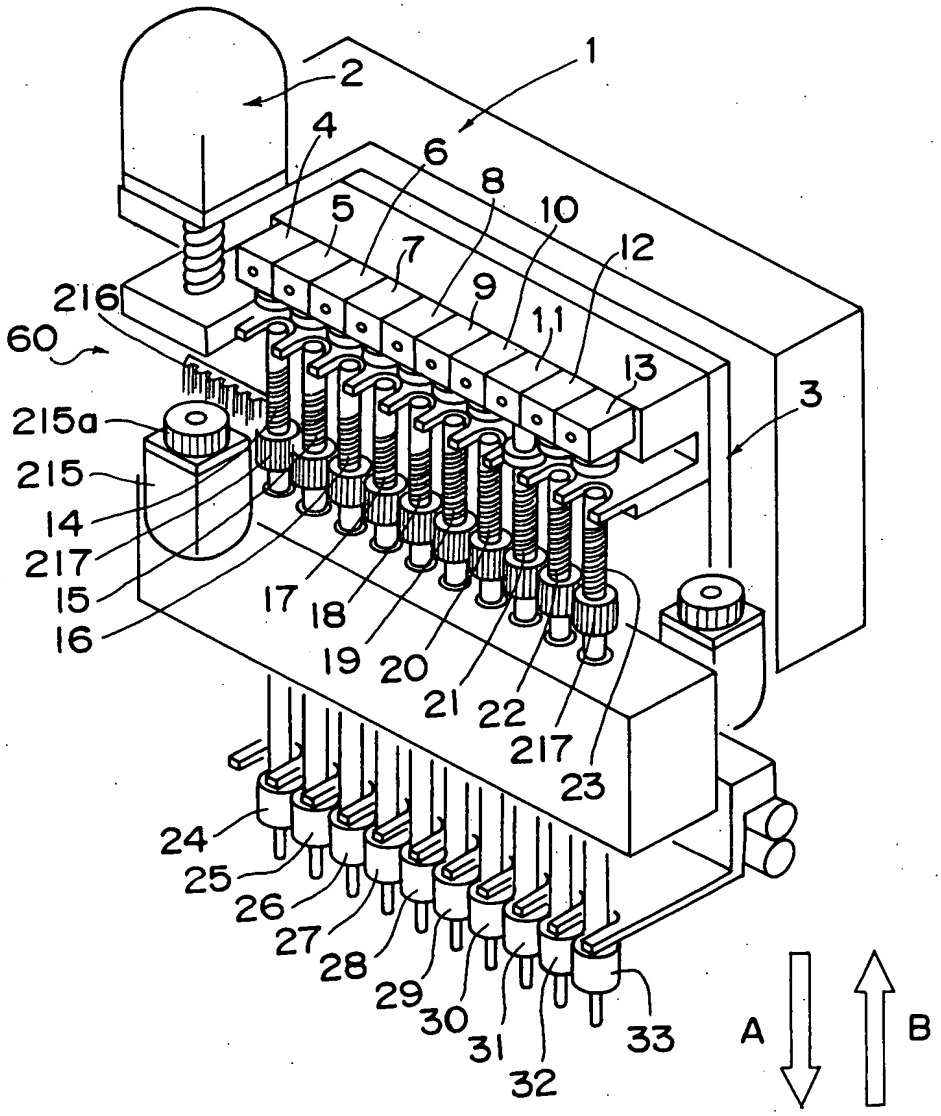
Fig. 1


1
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32
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60
215
215a
216
217
217
A
B

Fig. 2A

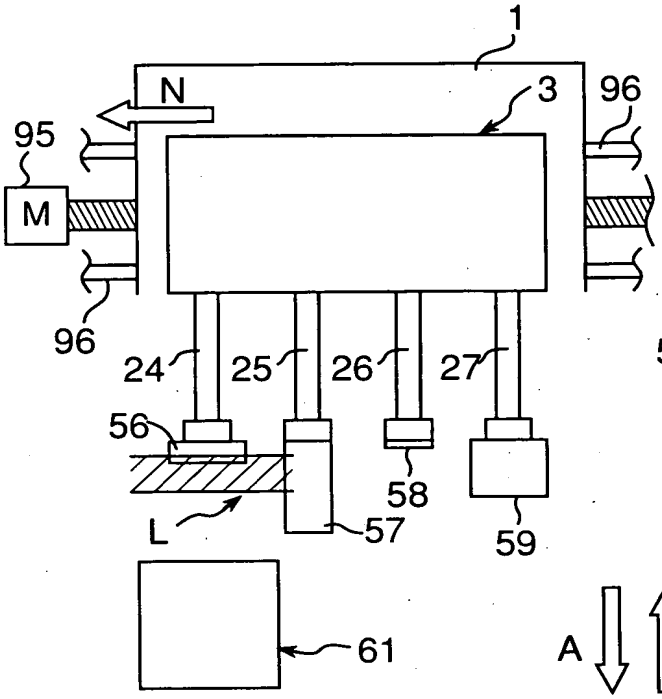
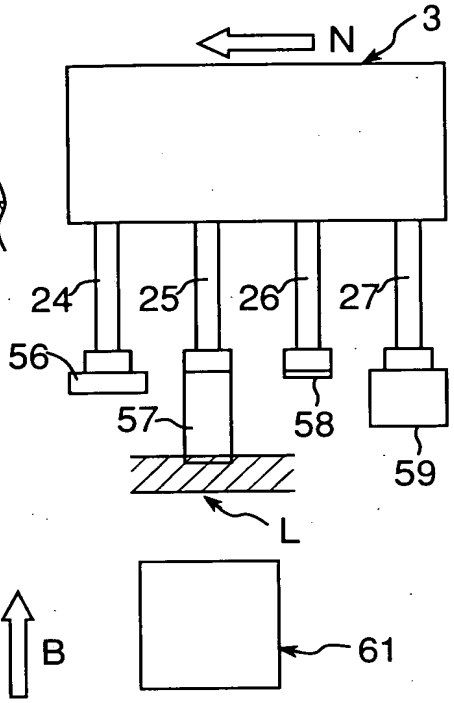



Fig. 2B




A B

Fig. 2C

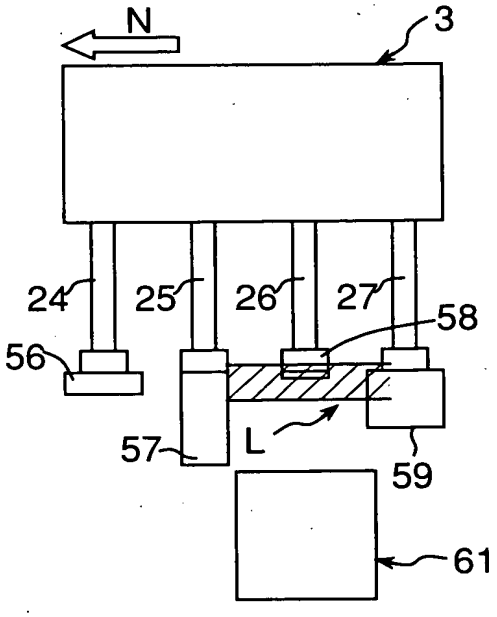



Fig. 2D

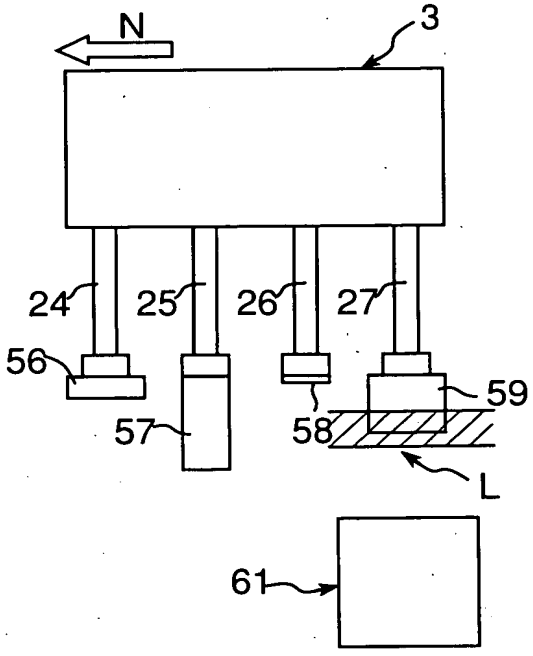
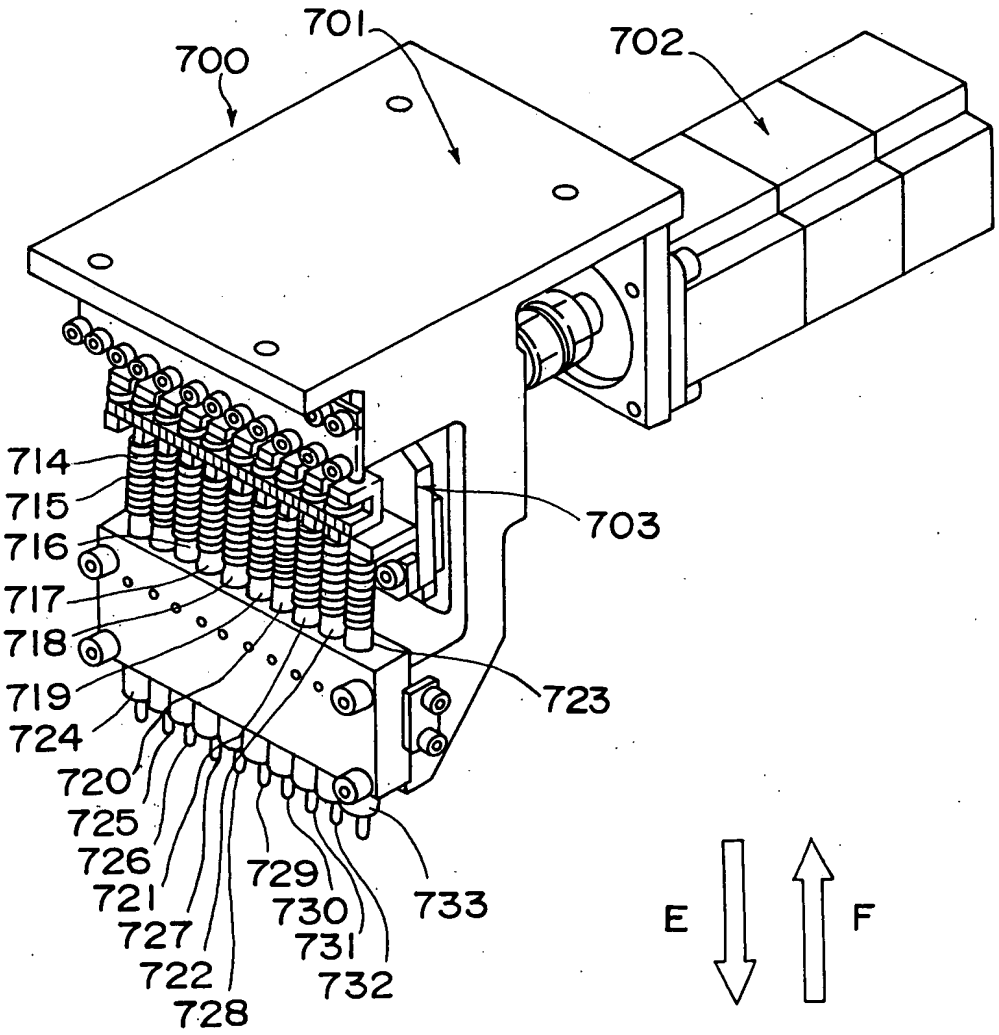


Fig. 3


701
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703
723
E
F

Fig. 4A

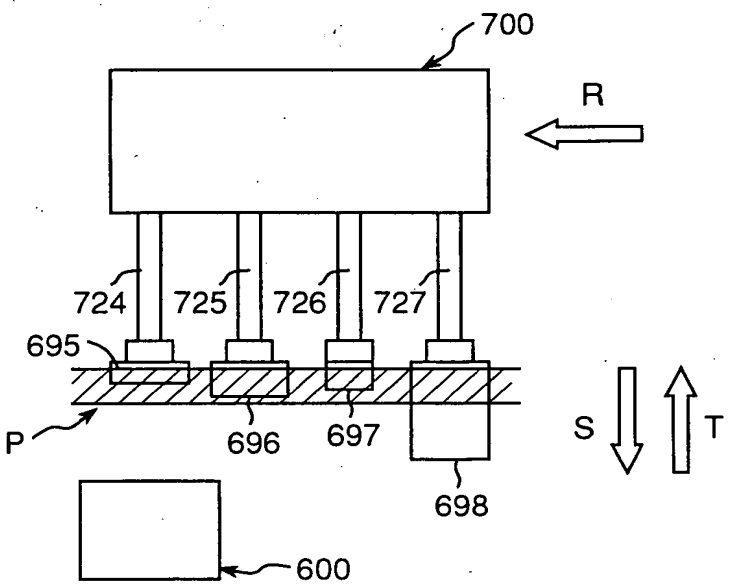


Fig. 4B

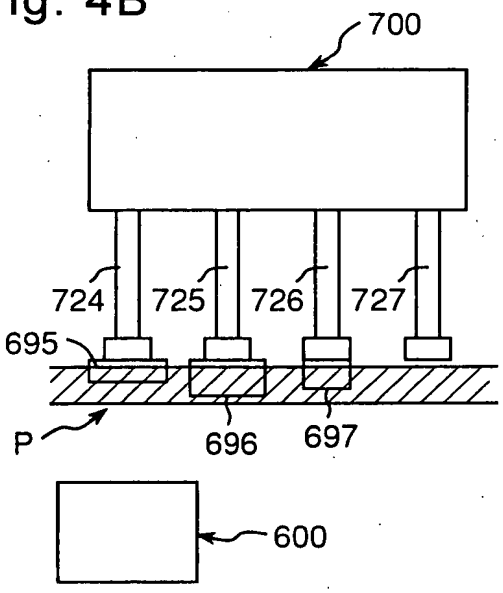


Fig. 4C

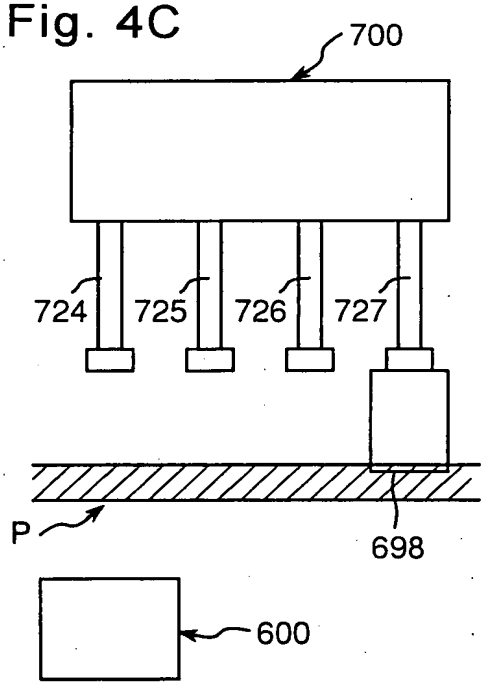


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Fig. 5

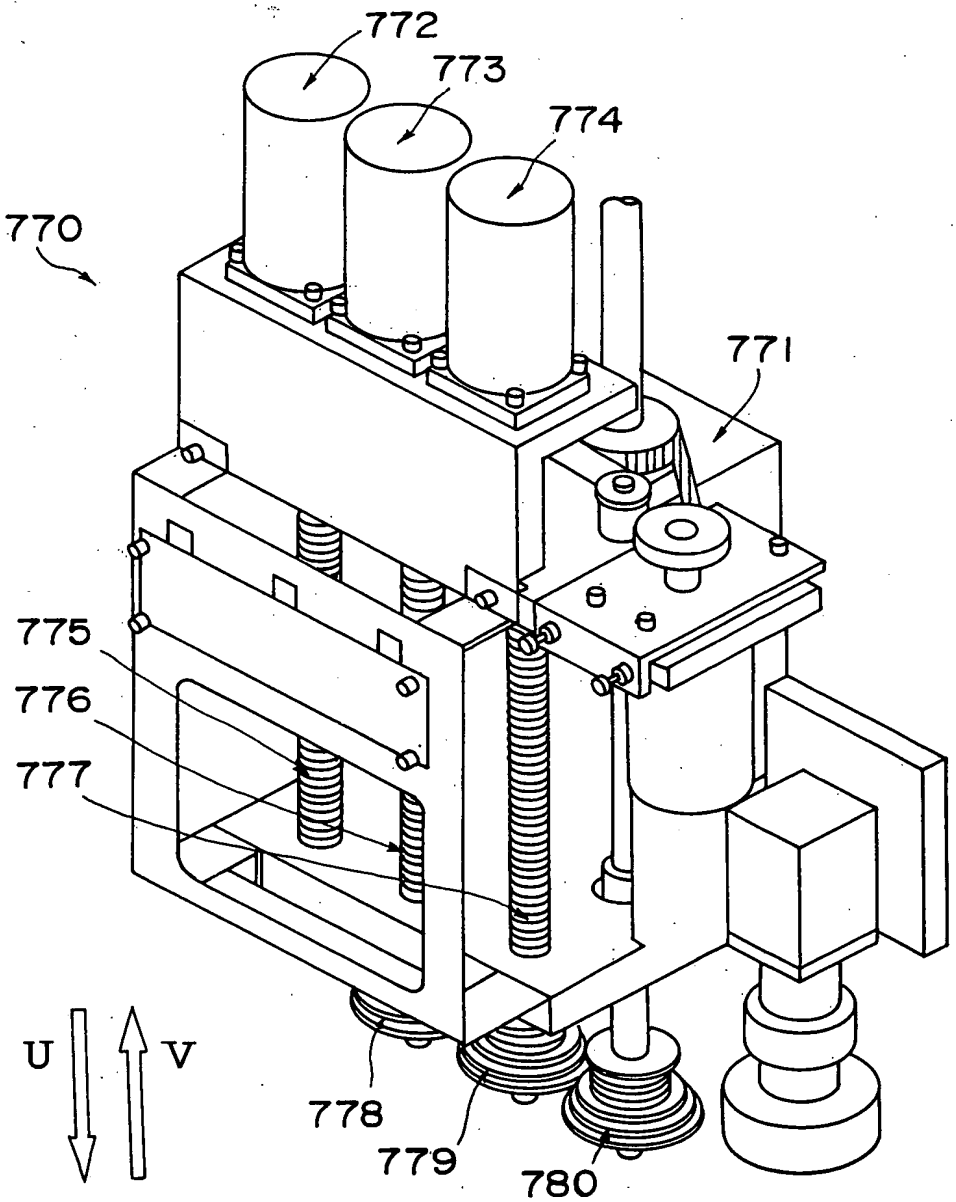

Fig. 6

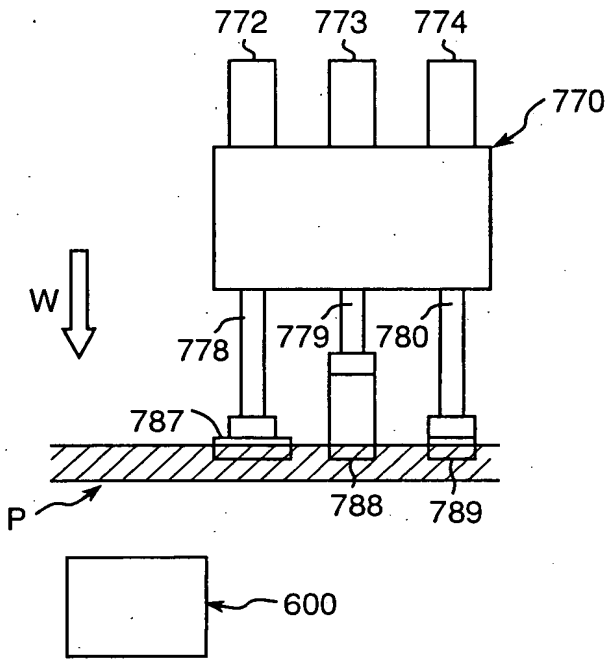


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Fig. 7

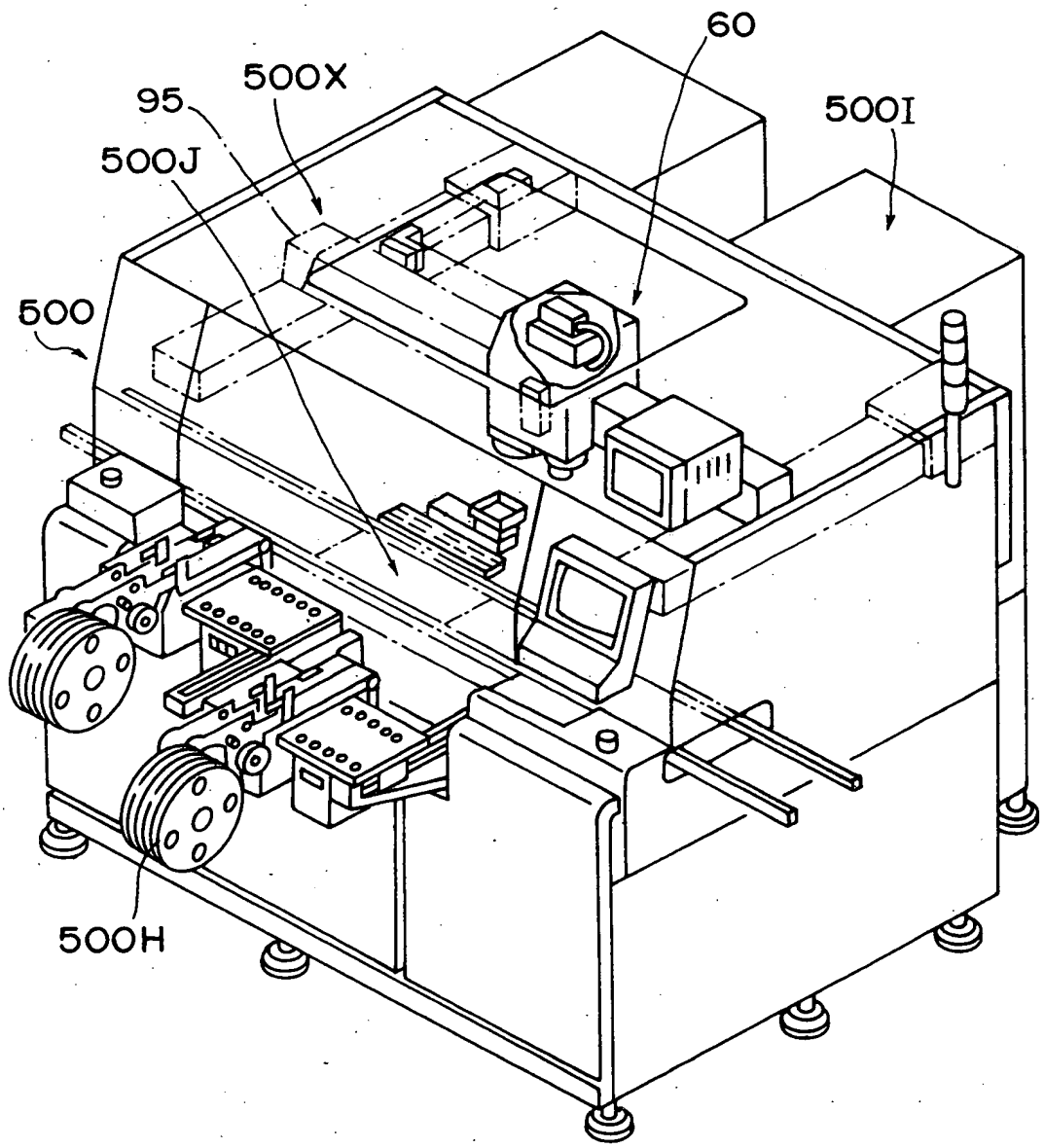

Fig. 8A

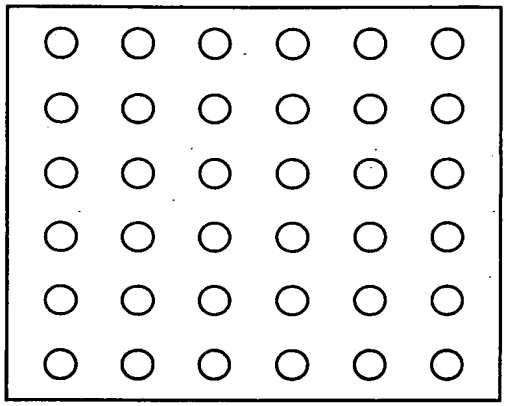

Fig. 8B

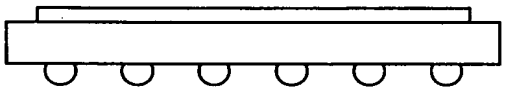

Fig. 8C

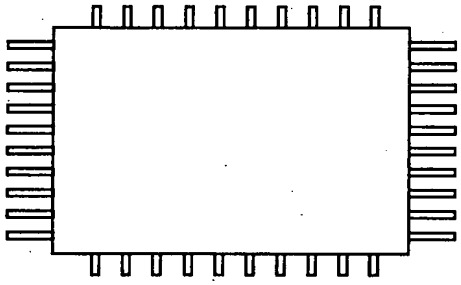

Fig. 8D

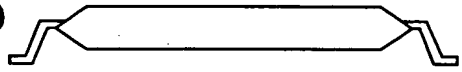

Fig. 8E

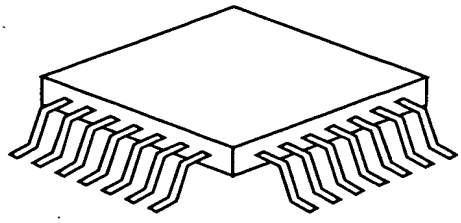

Fig. 8F

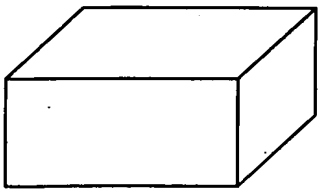

Fig. 8G

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Fig.9

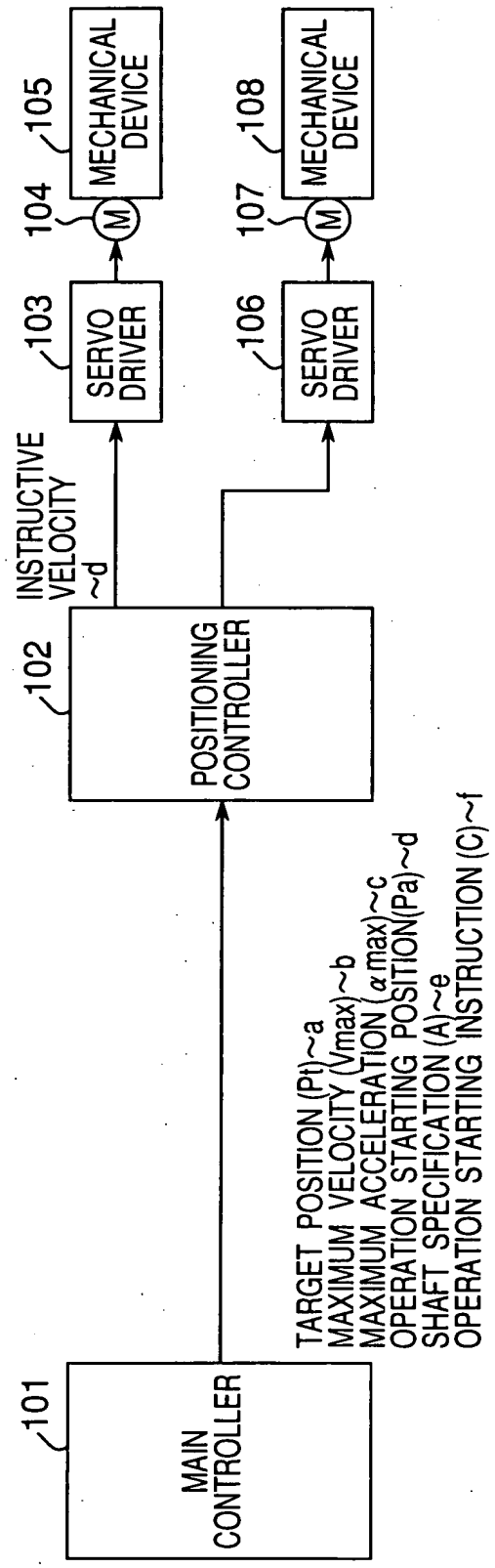

*Fig.10*

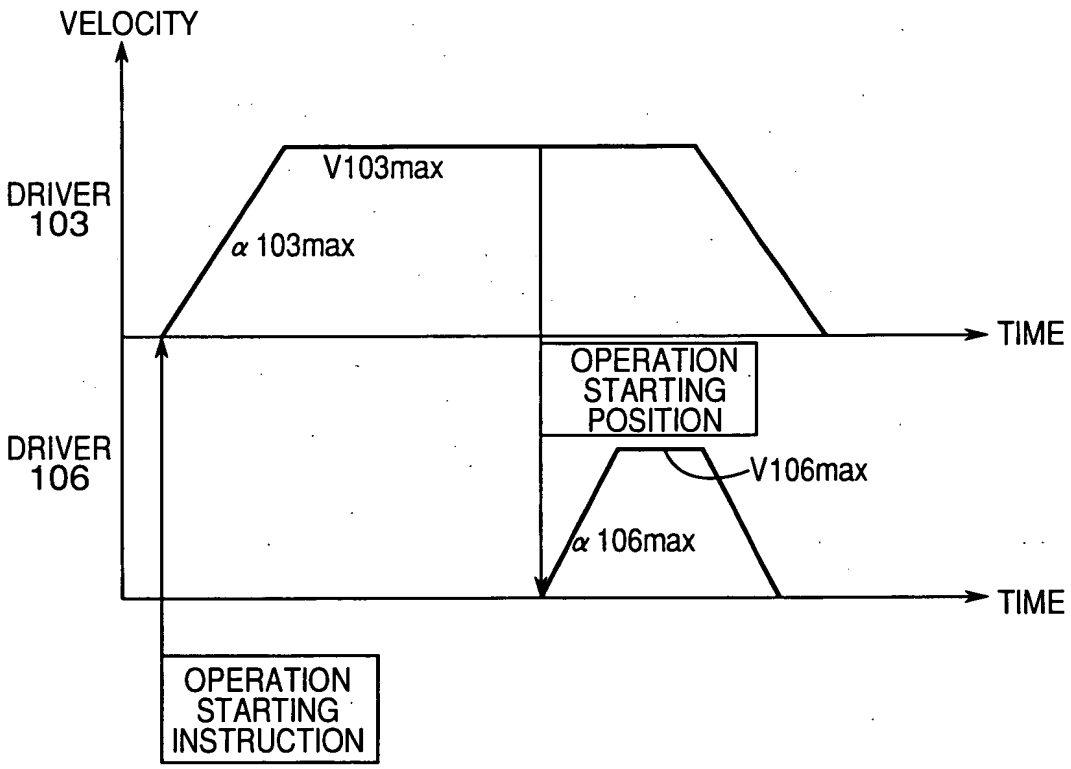
VELOCITY
DRIVER 103
V103max
α 103max
TIME
OPERATION STARTING POSITION
DRIVER 106
V106max
α 106max
TIME
OPERATION STARTING INSTRUCTION

Fig.11

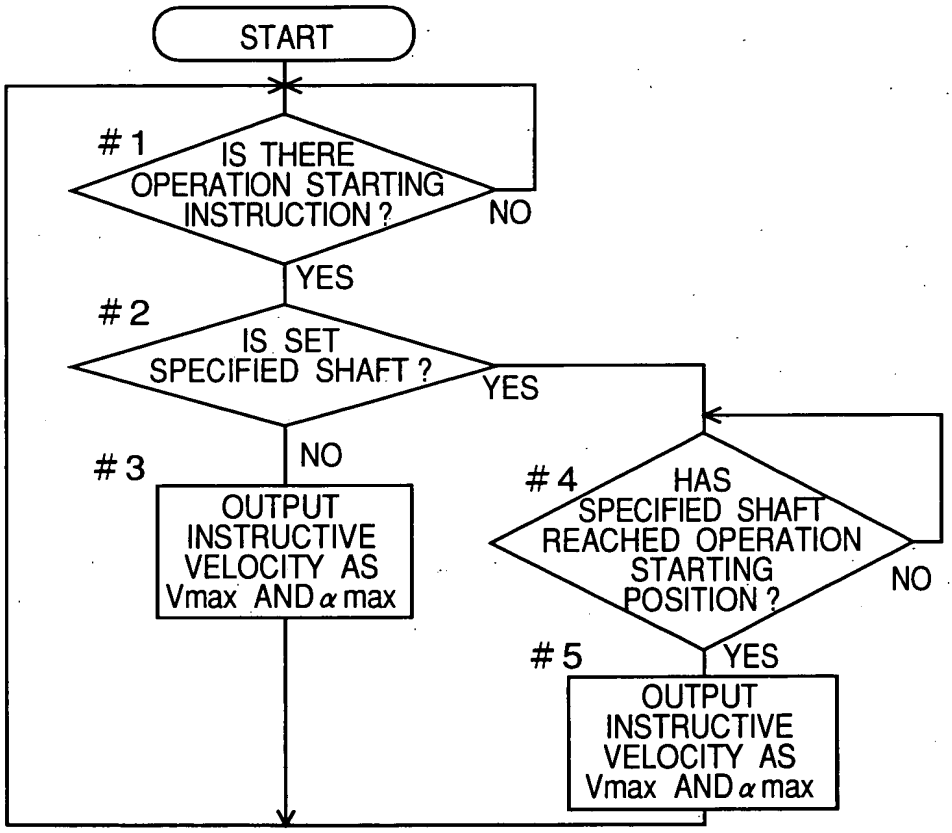
START
#1
IS THERE OPERATION STARTING INSTRUCTION ?
NO
YES
#2
IS SET SPECIFIED SHAFT ?
YES
NO
#3
OUTPUT INSTRUCTIVE VELOCITY AS Vmax AND α max
#4
HAS SPECIFIED SHAFT REACHED OPERATION STARTING POSITION ?
NO
YES
#5
OUTPUT INSTRUCTIVE VELOCITY AS Vmax AND α max

Fig.12

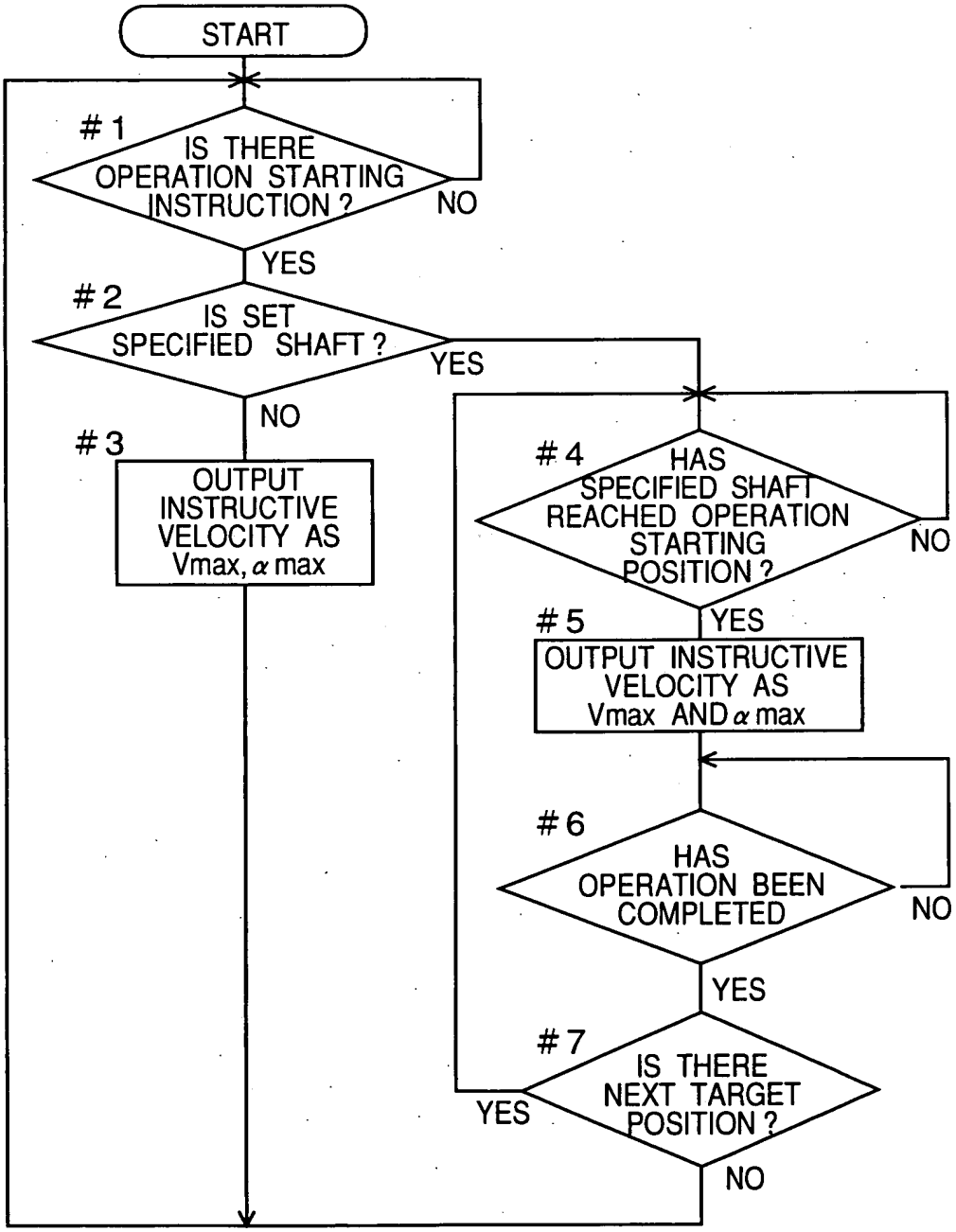
START
#1
IS THERE OPERATION STARTING INSTRUCTION ?
NO
YES
#2
IS SET SPECIFIED SHAFT ?
YES
NO
#3
OUTPUT INSTRUCTIVE VELOCITY AS Vmax, α max
#4
HAS SPECIFIED SHAFT REACHED OPERATION STARTING POSITION ?
NO
YES
#5
OUTPUT INSTRUCTIVE VELOCITY AS Vmax AND α max
#6
HAS OPERATION BEEN COMPLETED
NO
YES
#7
IS THERE NEXT TARGET POSITION ?
YES
NO

Fig.13

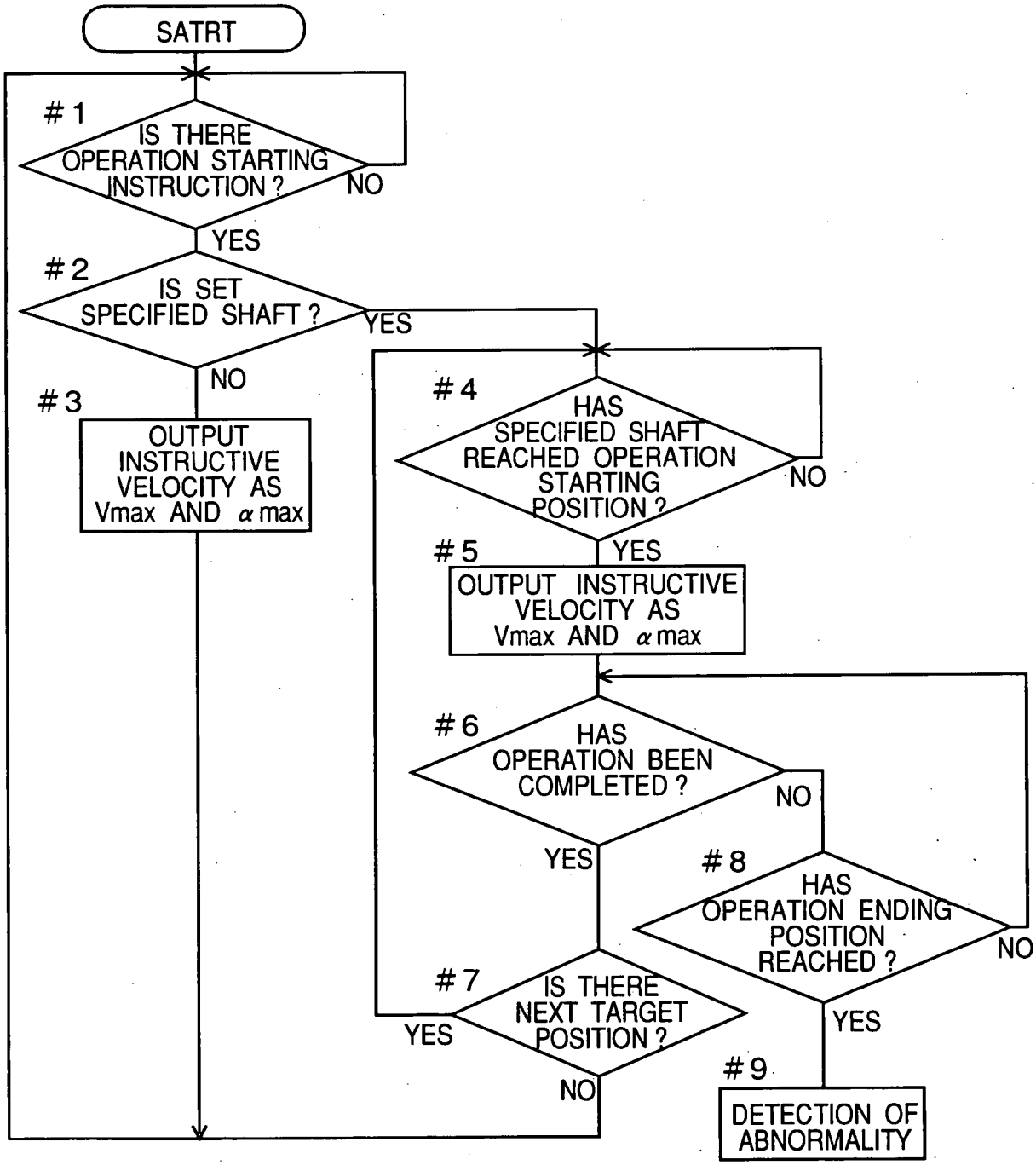
SATRT
#1
IS THERE OPERATION STARTING INSTRUCTION ?
NO
YES
#2
IS SET SPECIFIED SHAFT ?
YES
NO
#3
OUTPUT INSTRUCTIVE VELOCITY AS Vmax AND α max
#4
HAS SPECIFIED SHAFT REACHED OPERATION STARTING POSITION ?
NO
YES
#5
OUTPUT INSTRUCTIVE VELOCITY AS Vmax AND α max
#6
HAS OPERATION BEEN COMPLETED ?
NO
YES
#8
HAS OPERATION ENDING POSITION REACHED ?
NO
YES
#7
IS THERE NEXT TARGET POSITION ?
YES
NO
#9
DETECTION OF ABNORMALITY

Fig.14

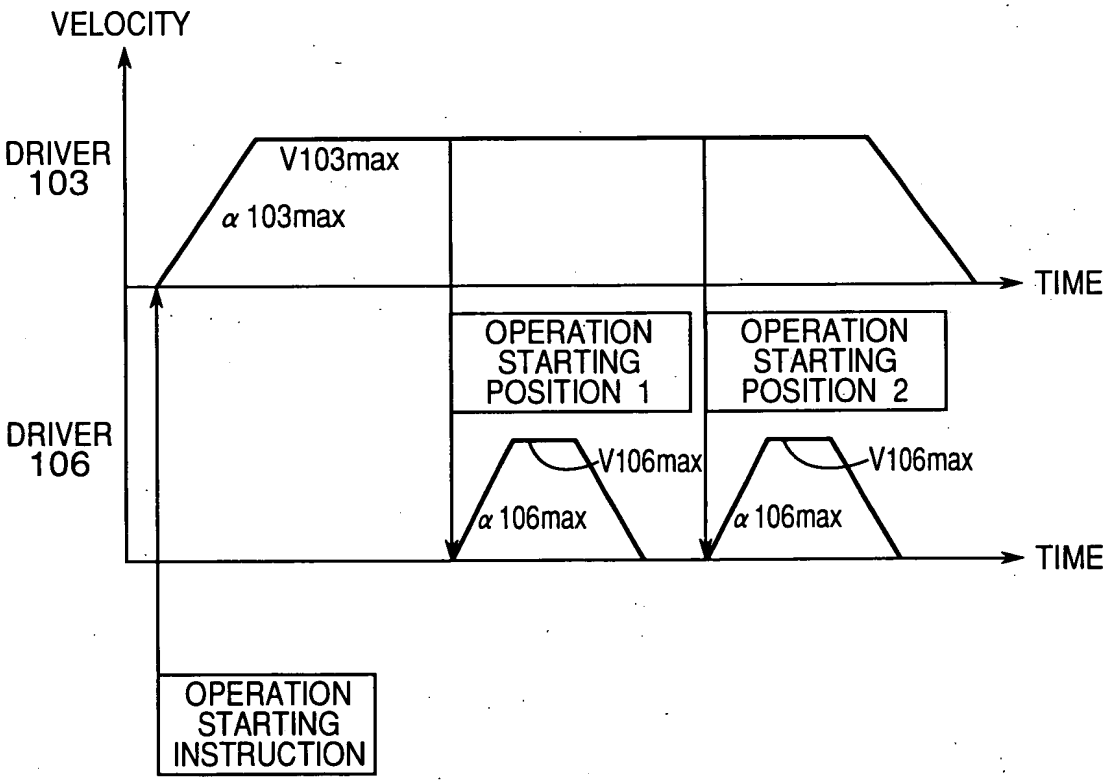
VELOCITY
DRIVER 103
V103max
α 103max
TIME
OPERATION STARTING POSITION 1
OPERATION STARTING POSITION 2
DRIVER 106
V106max
V106max
α 106max
α 106max
TIME
OPERATION STARTING INSTRUCTION

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Fig.15

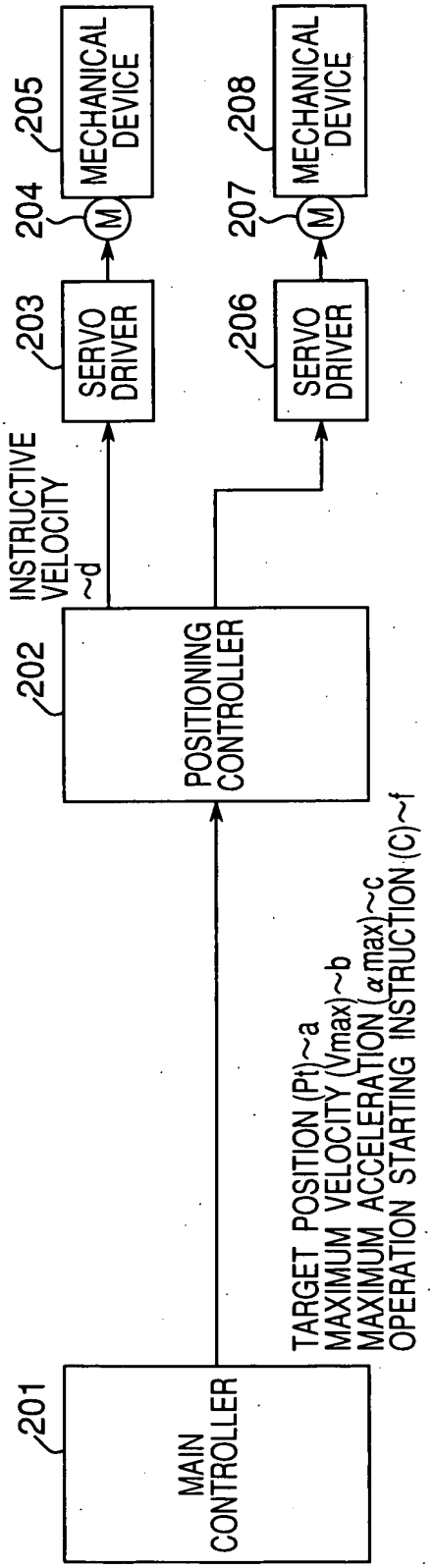

Fig.16

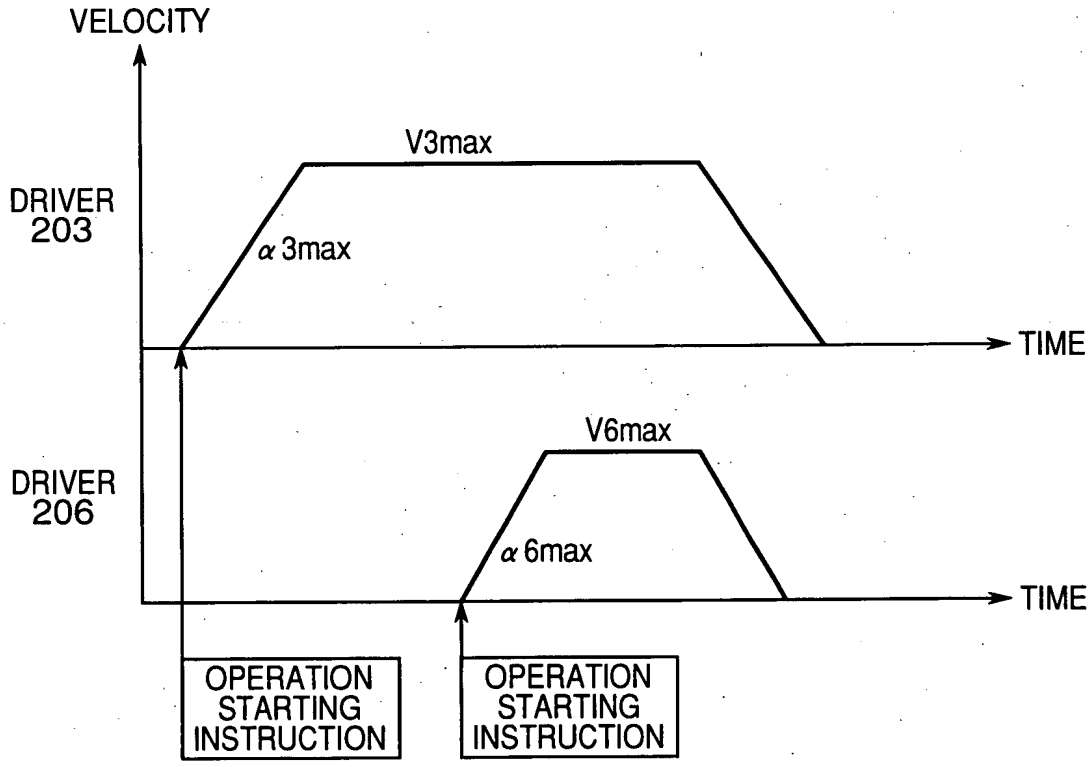
VELOCITY
V3max
DRIVER 203
α3max
TIME
V6max
DRIVER 206
α6max
TIME
OPERATION STARTING INSTRUCTION
OPERATION STARTING INSTRUCTION

Fig. 17

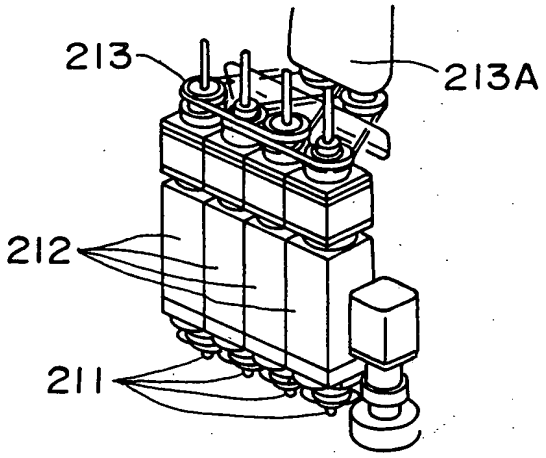


Fig. 18

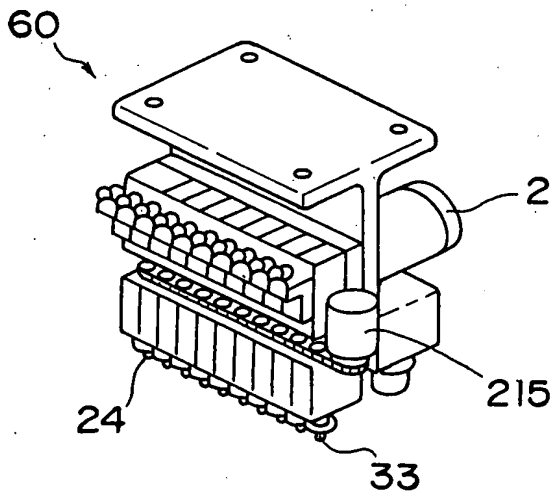


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Fig.19A

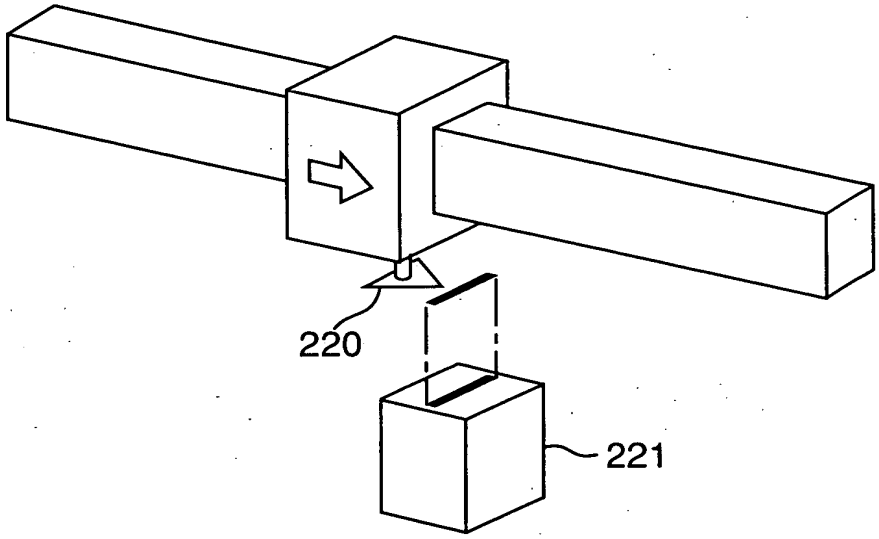


Fig.19B

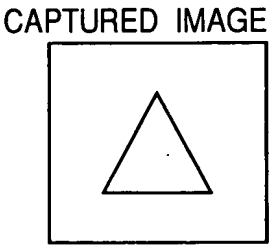

Fig. 20

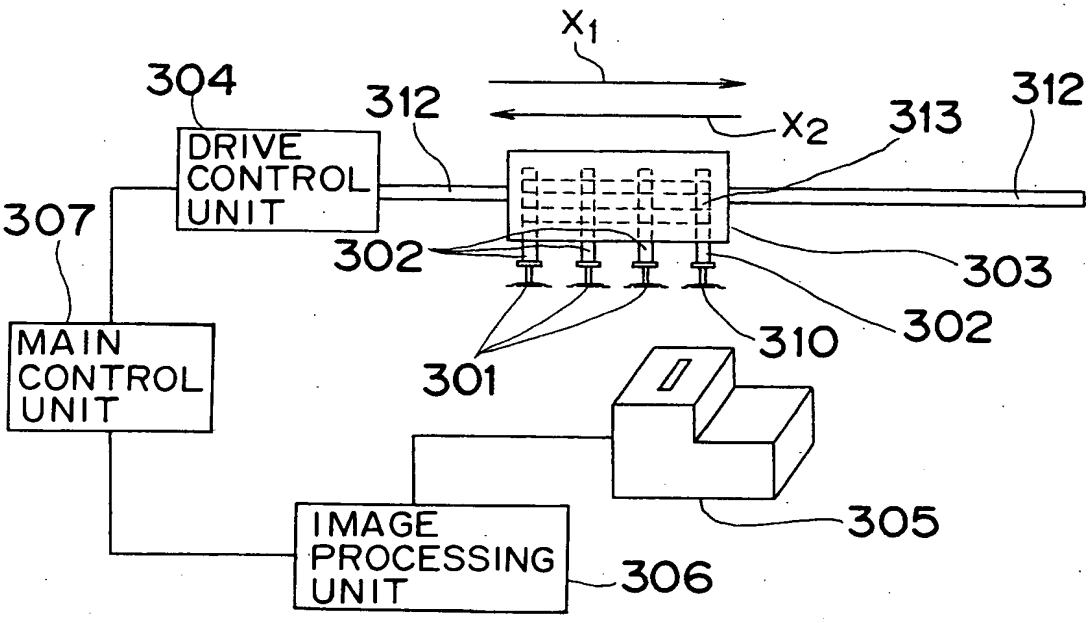
X1
X2
304
312
313
312
DRIVE CONTROL UNIT
307
302
303
MAIN CONTROL UNIT
301
310
302
305
IMAGE PROCESSING UNIT
306

Fig. 21

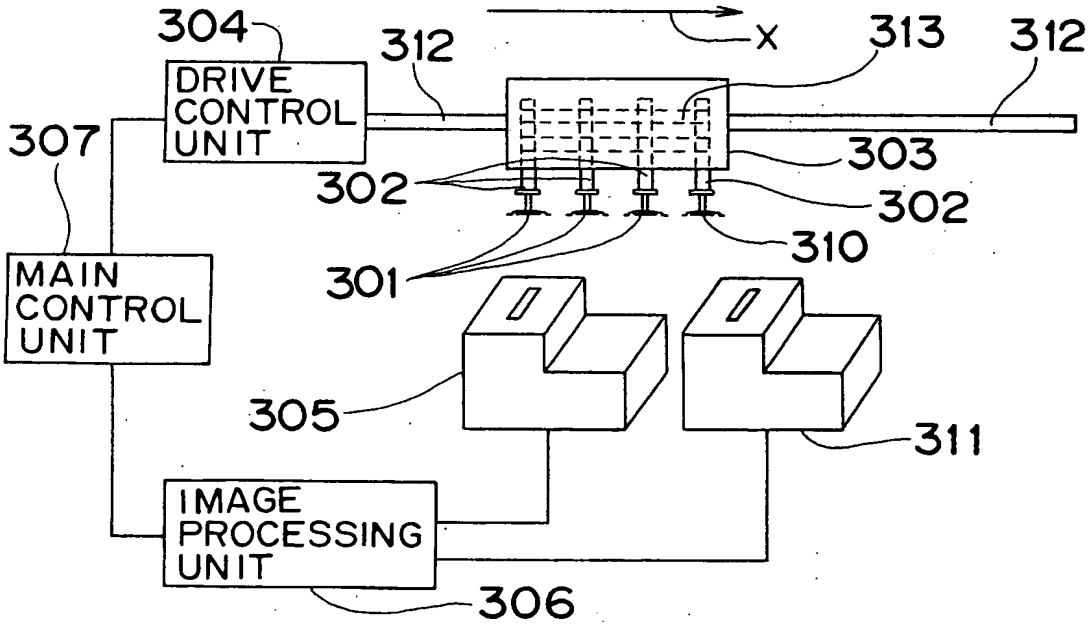
304
X
313
312
312
DRIVE CONTROL UNIT
307
303
302
302
310
MAIN CONTROL UNIT
301
305
311
IMAGE PROCESSING UNIT
306

Fig.22

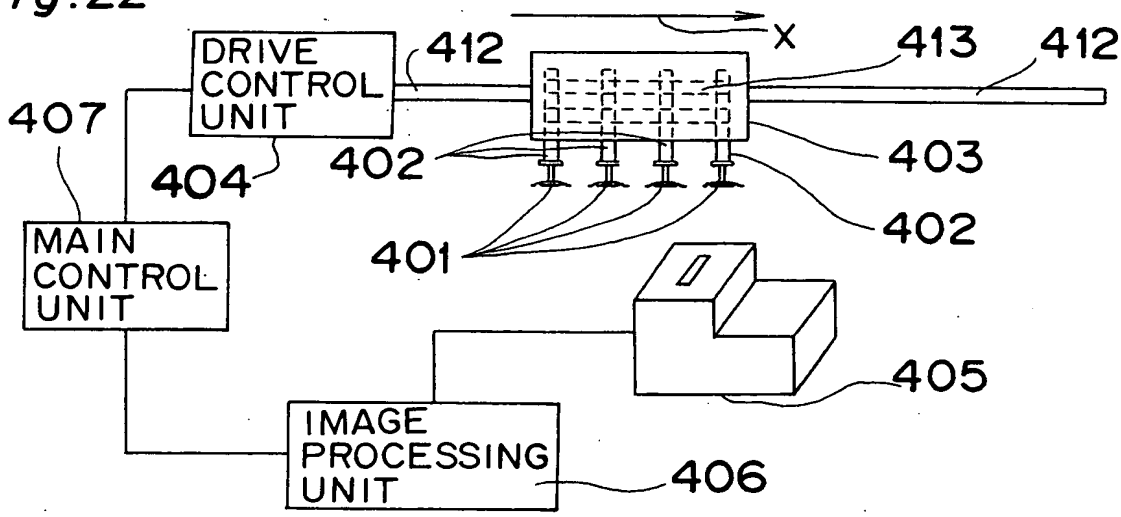


Fig.23

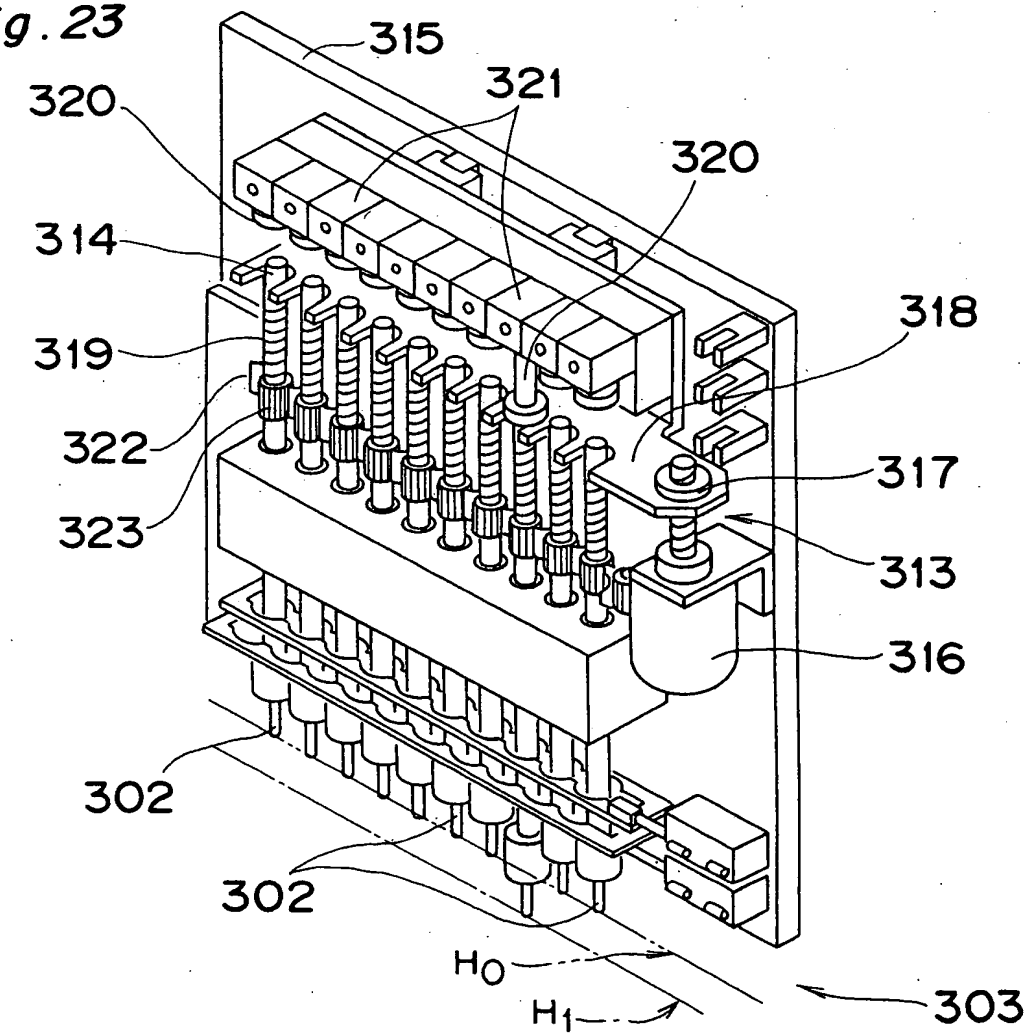


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Fig. 24

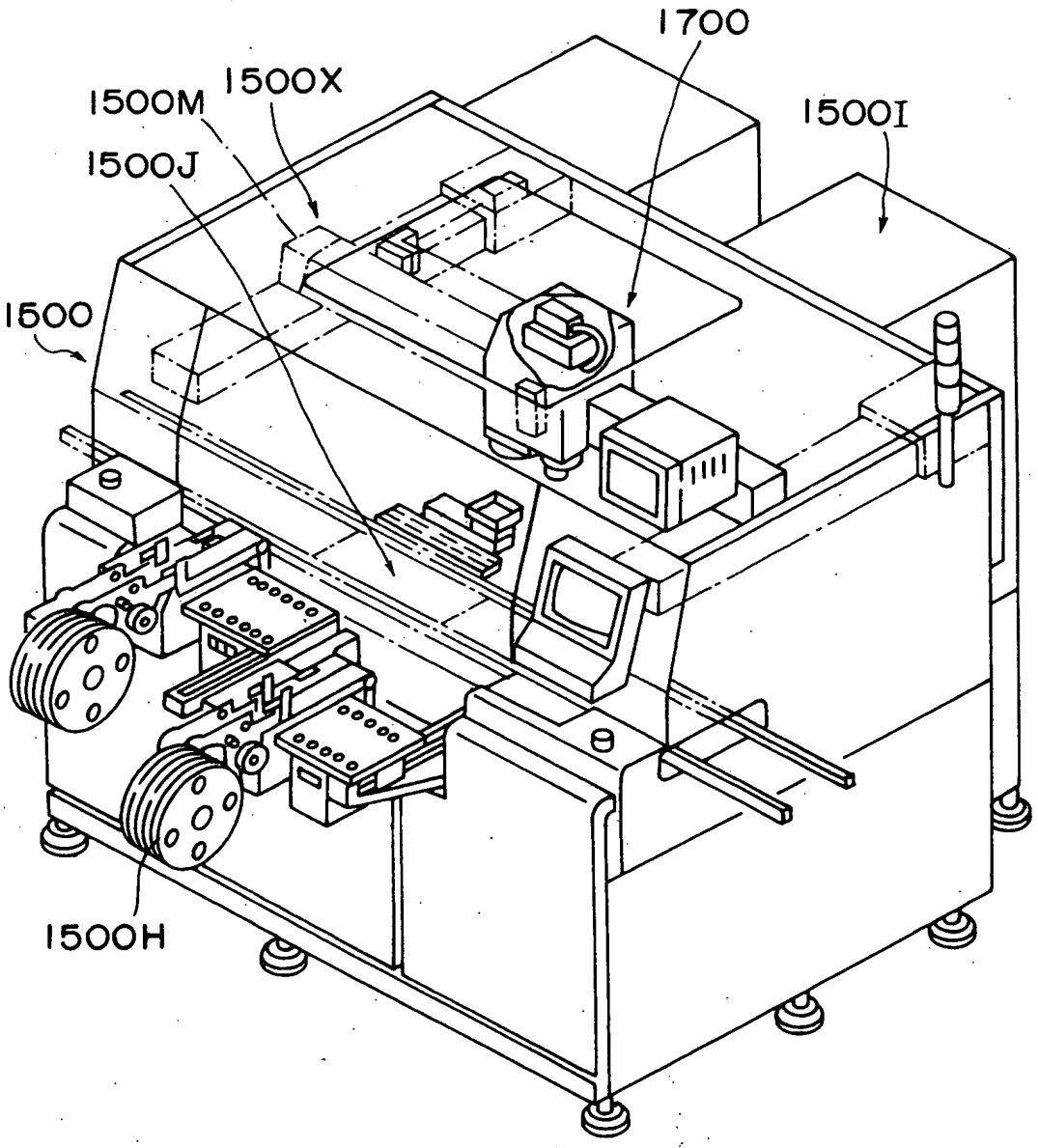


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*Fig.25*

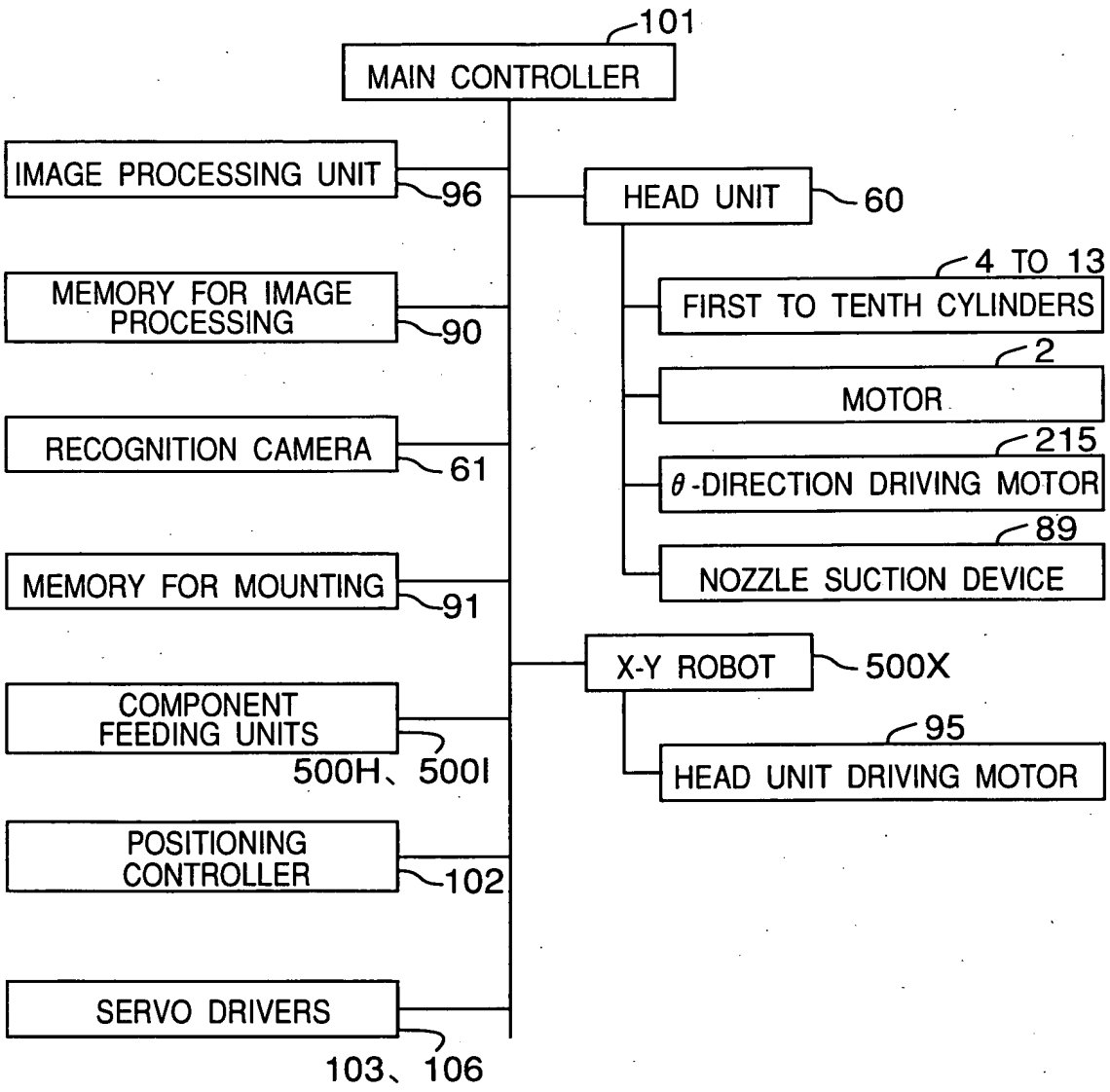
101
MAIN CONTROLLER
IMAGE PROCESSING UNIT
96
HEAD UNIT
60
4 TO 13
FIRST TO TENTH CYLINDERS
MEMORY FOR IMAGE PROCESSING
90
2
MOTOR
RECOGNITION CAMERA
61
215
θ-DIRECTION DRIVING MOTOR
89
NOZZLE SUCTION DEVICE
MEMORY FOR MOUNTING
91
X-Y ROBOT
500X
COMPONENT FEEDING UNITS
500H、500I
95
HEAD UNIT DRIVING MOTOR
POSITIONING CONTROLLER
102
SERVO DRIVERS
103、106

Fig.26

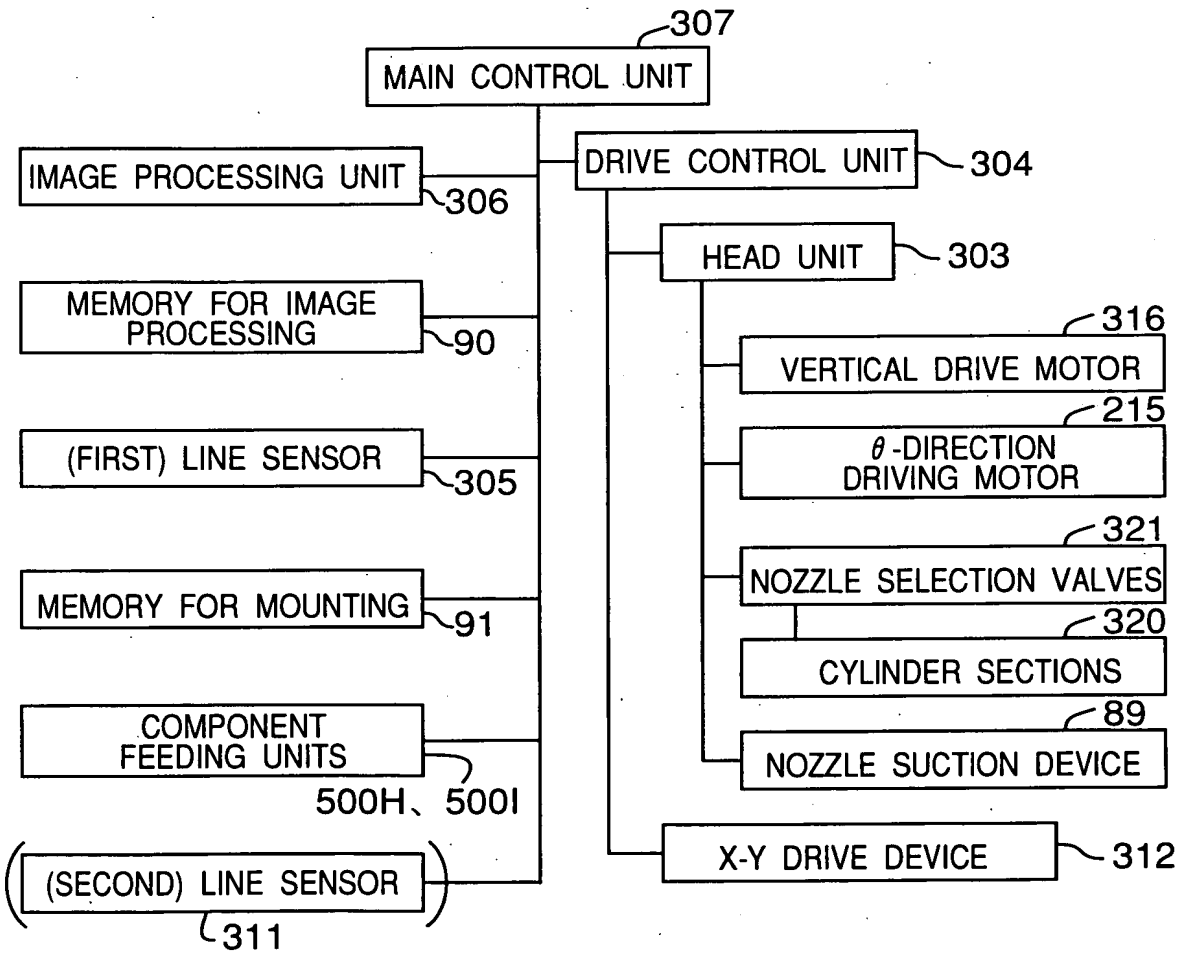
307
MAIN CONTROL UNIT
IMAGE PROCESSING UNIT
306
DRIVE CONTROL UNIT
304
HEAD UNIT
303
MEMORY FOR IMAGE PROCESSING
90
316
VERTICAL DRIVE MOTOR
215
θ-DIRECTION DRIVING MOTOR
(FIRST) LINE SENSOR
305
321
NOZZLE SELECTION VALVES
320
CYLINDER SECTIONS
MEMORY FOR MOUNTING
91
89
NOZZLE SUCTION DEVICE
COMPONENT FEEDING UNITS
500H、500I
X-Y DRIVE DEVICE
312
(SECOND) LINE SENSOR
311

Fig.27

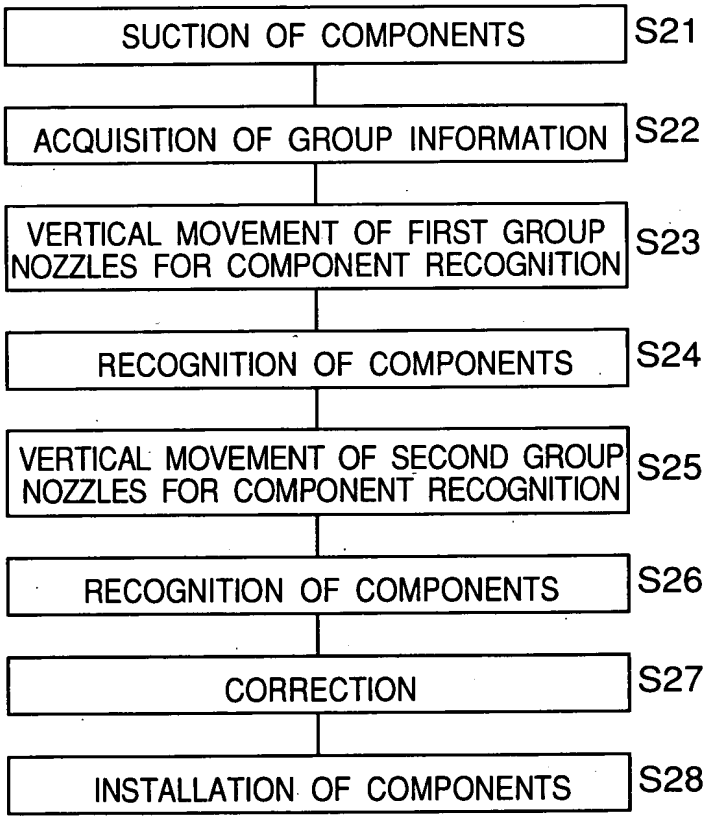


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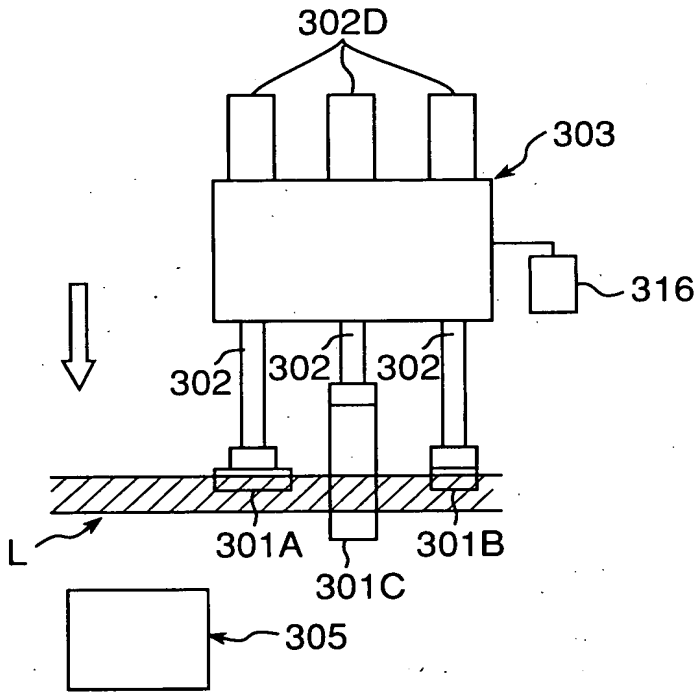
Fig. 28

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